General

Guideline Title

SAGES guidelines for the surgical treatment of esophageal achalasia.

Bibliographic Source(s)

Stefanidis D, Richardson W, Farrell TM, Kohn GP, Augenstein V, Fanelli RD. SAGES guidelines for the surgical treatment of esophageal achalasia. Los Angeles (CA): Society of American Gastrointestinal and Endoscopic Surgeons (SAGES); 2011 May. 50 p. [128 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Definitions of the levels of evidence (+,++,+++,++++) and the grades of the recommendations (weak or strong) are provided at the end of the "Major Recommendations" field.

Diagnosis and Preoperative Workup

Patients with suspected achalasia should undergo a barium esophagram, an upper endoscopy, and esophageal manometry to confirm the diagnosis (+++, strong).

Treatment Options

Pharmacotherapy

Pharmacotherapy plays a very limited role in the treatment of achalastic patients and should be used in very early stages of the disease, temporarily prior to more definitive treatments, or for patients who fail or are not candidates for other treatment modalities (++++, strong).

Botulinum Toxin Injections

Botulinum toxin injection can be administered safely, but its effectiveness is limited especially in the long term. It should be reserved for patients who are poor candidates for other more effective treatment options such as surgery or dilation (++++, strong).

Dilatation

Among nonoperative treatment techniques endoscopic dilation is the most effective for dysphagia relief in patients with achalasia but is also

associated with the highest risk of complications. It should be considered in selected patients who refuse surgery or are poor operative candidates (++++, strong).

Other Options

Esophageal Stents

The use of esophageal stents cannot be recommended for the treatment of achalasia (++, strong).

Surgical Treatment of Achalasia

Myotomy Outcomes

Laparoscopic myotomy can be performed safely and with minimal morbidity in appropriately selected patients by appropriately trained surgeons and leads to dysphagia control and improved quality of life in the majority of patients (++++, strong). A relatively small proportion of patients, however, will experience recurrent symptoms in the long term often associated with postoperative reflux.

Effect of Prior Endoscopic Treatments on Myotomy Outcomes

Prior endoscopic treatment for achalasia may be associated with higher myotomy morbidity, but the literature is inconclusive. A careful approach by an experienced team is advisable (++, strong).

Myotomy Versus Endoscopic Treatment

Laparoscopic myotomy with partial fundoplication provides superior and longer-lasting symptom relief with low morbidity for patients with achalasia compared with other treatment modalities and should be considered the procedure of choice to treat achalasia (++++, strong).

Type of Surgical Approach

Transabdominal is superior to transthoracic esophageal myotomy due to improved postoperative reflux control by the addition of an antireflux procedure, performed only when the myotomy is done transabdominally. Laparoscopic myotomy offers advantages regarding postoperative pain, length of stay, and morbidity compared to open myotomy. The laparoscopic approach also allows routine incorporation of an antireflux procedure after myotomy, and is associated with the lowest patient morbidity, and therefore, is the procedure of choice for the surgical treatment of achalasia in most patients (+++, strong).

Compared with laparoscopy, robotic assistance has been demonstrated to decrease the rate of intraoperative esophageal mucosal perforations (++, weak), but no clear differences in postoperative morbidity, symptom relief, or long-term outcomes have been described. Further study is necessary to better establish the role of robotic myotomy.

Role of Fundoplication After Myotomy

Patients who undergo a myotomy should also have a fundoplication to prevent postoperative reflux and minimize treatment failures (++++, strong).

The optimal type of fundoplication is debated (posterior vs. anterior), but partial fundoplication should be favored over total fundoplication, as it is associated with decreased dysphagia rates and similar reflux control (++, weak). Additional evidence is needed to determine which partial fundoplication provides the best reflux control after myotomy.

Length of Myotomy

The length of the esophageal myotomy should be at least 4 cm on the esophagus and 1-2 cm on the stomach (+, weak).

Treatment Options After Failed Myotomy

Endoscopic Botulinum toxin treatment can be applied safely and with equal effectiveness before or after myotomy (++, weak), but endoscopic balloon dilation after myotomy is currently considered hazardous by most experts and should be avoided (++, weak).

Repeat myotomy may be superior to endoscopic treatment and should be undertaken by experienced surgeons (++, strong).

Esophagectomy should be considered in appropriately selected patients after myotomy failure (+, weak).

Epiphrenic Diverticula

Epiphrenic diverticula should be treated surgically when symptomatic. Given their frequent association with achalasia, esophageal manometry

should be pursued to confirm the diagnosis of achalasia when they are identified. A myotomy at the opposite side of the diverticulum that goes beyond the distal extent of the diverticulum should be performed when achalasia is present. In this situation, concomitant diverticulectomy may be indicated based on the size of the diverticulum. When diverticula are not resected, endoscopic surveillance is advised. The optimal approach for their treatment needs further study, and surgeons should be aware of the relatively high incidence of postoperative leaks (+, weak).

Definitions:

Quality of Evidence

Both the quality of the evidence and the strength of the recommendation for each of the guidelines were assessed according to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system. There is a 4-tiered system for quality of evidence: very low (+), low (++), moderate (+++), or high (++++).

Strength of Recommendations

Both the quality of the evidence and the strength of the recommendation for each of the guidelines were assessed according to the GRADE system. There is a 2-tiered system for strength of recommendation (weak or strong).

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Esophageal achalasia

Guideline Category

Diagnosis

Management

Treatment

Clinical Specialty

Gastroenterology

Radiology

Surgery

Intended Users

Physicians

Guideline Objective(s)

To assist surgeon (and patient) decisions about the appropriate use of minimally invasive techniques for the treatment of achalasia in specific clinical circumstances

Target Population

Patients with esophageal achalasia

Interventions and Practices Considered

Diagnosis

1. Barium esophagram
2. Upper endoscopy
3. Esophageal manometry

Management/Treatment

1. Pharmacotherapy
2. Botulinum toxin
3. Endoscopic dilatation
4. Laparoscopic myotomy with partial fundoplication
5. Antireflux procedure after myotomy
6. Management of failed myotomy
7. Surgical repair/surveillance of epiphrenic diverticula

Note: The use of esophageal stents was considered but not recommended.

Major Outcomes Considered

- Symptom improvement
- Morbidity
- Postoperative gastroesophageal reflux
- Complications associated with treatment

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

A systematic literature search was performed on MEDLINE in October 2009. The search strategy was limited to adult English language articles and is shown in Figure 1 in the original guideline document.

The authors identified 214 relevant articles. The abstracts were reviewed by four committee members (DS, WR, TMF, and GPK) and divided into the following categories:

1. Randomized studies, meta-analyses, and systematic reviews
2. Prospective studies
3. Retrospective studies
4. Case reports
5. Review articles

Randomized controlled trials, meta-analyses, and systematic reviews were selected for further review along with prospective and retrospective

studies that included at least 50 patients. Studies with smaller samples were considered when additional evidence was lacking. The most recent reviews were also included. All case reports, old reviews, and smaller studies were excluded. According to these exclusion criteria, 102 articles were selected for review. Whenever the available evidence from Level I studies was considered to be adequate, lower evidence level studies were not considered.

The reviewers graded the level of evidence and manually searched the bibliography of each article for additional articles that may have been missed during the original search. Additional relevant articles (n=25) were obtained and included in the review for grading.

Number of Source Documents

A total of 127 graded articles relevant to this guideline were included in this review.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Both the quality of the evidence and the strength of the recommendation for each of the guidelines were assessed according to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system. There is a 4-tiered system for quality of evidence: very low (+), low (++), moderate (+++), or high (++++).

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

To facilitate the review by multiple reviewers, these articles were divided into the following topics and distributed to the reviewers:

- Myotomy versus non-surgical treatment
- Laparoscopic myotomy with or without fundoplication
- Technique (laparoscopic, open, robotic, thoracoscopic, other)
- Revisional surgery
- Predictors of success
- Outcome
- Epiphrenic diverticula
- Other articles

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

The recommendations included in this guideline were devised based on the reviewers' grading of all articles.

Rating Scheme for the Strength of the Recommendations

Both the quality of the evidence and the strength of the recommendation for each of the guidelines were assessed according to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system. There is a 2-tiered system for strength of recommendation (weak or strong).

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

This guideline was reviewed and approved by the Board of Governors of the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), May 2011.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate surgical treatment of esophageal achalasia

Potential Harms

- The main limitations of calcium channel blockers and long-acting nitrates agents are their short duration of action, the incomplete symptom relief, and decreased efficacy during long-term use. In addition, side effects such as peripheral edema, headache, and hypotension occur in up to 30% of patients and further limit their use.
- Reported complications of botulinum toxin injection are rare and include esophageal mucosal ulceration, pleural effusion, cardiac conduction defects, and mediastinitis.
- Complications of pneumatic esophageal dilatation include esophageal perforation, intramural hematoma, and gastroesophageal reflux. After balloon dilation, the damaged LES allows gastric contents to more easily reflux into the esophagus, and up to 40% of patients develop chronic active or ulcerating esophagitis after dilatation, though only 4% are symptomatic.
- Among nonoperative treatment techniques endoscopic dilation is the most effective for dysphagia relief in patients with achalasia but is also associated with the highest risk of complications.
- With regard to surgery-related complications of myotomy, esophageal perforation during surgery has been reported to occur on average in 6.9% (range 0-33) of patients, but with clinical consequences in only 0.7% (range 0-3%) of patients. In one series of 222 patients, inadvertent esophagotomy occurred in 16 (7.2%), resulting in longer hospitalization but not different postoperative symptomatology.
- Several studies have suggested an increased risk for intraoperative complications during esophagomyotomy after prior endoscopic intervention.

Qualifying Statements

Qualifying Statements

Disclaimer

Clinical practice guidelines are intended to indicate the best available approach to medical conditions as established by a systematic review of available data and expert opinion. The approach suggested may not necessarily be the only acceptable approach given the complexity of the healthcare environment. These guidelines are intended to be flexible, as the surgeon must always choose the approach best suited to the individual patient and variables in existence at the moment of decision. These guidelines are applicable to all physicians who are appropriately credentialed and address the clinical situation in question, regardless of specialty.

Limitations of the Available Literature

The achalasia literature is limited due to the rarity of the disease. Consequently, few small controlled trials are available, and most studies are retrospective in nature with significant heterogeneity among them and increased risk for publication bias and other confounding factors. In addition, reporting of outcomes varies significantly as does the follow-up period, which generally tends to be short, making it difficult to combine and compare such data. Finally, the majority of the studies do not report details on the expertise of their surgeons, and most have been conducted in single institutions, making the generalization of their findings difficult. Based on these limitations of the literature, firm recommendations are difficult.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Identifying Information and Availability

Bibliographic Source(s)

Stefanidis D, Richardson W, Farrell TM, Kohn GP, Augenstein V, Fanelli RD. SAGES guidelines for the surgical treatment of esophageal achalasia. Los Angeles (CA): Society of American Gastrointestinal and Endoscopic Surgeons (SAGES); 2011 May. 50 p. [128 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2011 May

Guideline Developer(s)

Society of American Gastrointestinal and Endoscopic Surgeons - Medical Specialty Society

Source(s) of Funding

Society of American Gastrointestinal and Endoscopic Surgeons

Guideline Committee

Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) Guideline Committee

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Financial Disclosures/Conflicts of Interest

Society of American Gastrointestinal Endoscopic Surgeons (SAGES) leadership members, committee members, and guidelines authors disclose real and potential conflicts on a yearly basis and whenever they change, and real and potential conflicts are mitigated through mechanisms approved by the SAGES Conflict of Interest Task Force.

Drs. Stefanidis, Richardson, Farrell, Kohn, Augenstein, and Fanelli have no conflicts of interest or financial ties relevant to this publication to disclose.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) Web site .

Print copies: Available from the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES), 11300 W. Olympic Blvd., Suite 600, Los Angeles, CA 90064; www.sages.org.

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

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